

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44*bis*)

Applicant's or agent's file reference 49506.0005	<b>FOR FURTHER ACTION</b>	See item 4 below
International application No. PCT/US2005/002229	International filing date ( <i>day/month/year</i> ) 19 January 2005 (19.01.2005)	Priority date ( <i>day/month/year</i> ) 20 January 2004 (20.01.2004)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant BRIGHAM YOUNG UNIVERSITY TECHNOLOGY TRANSFER OFFICE		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 *bis*.1(a).

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

- |                                     |              |   |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the report   |
| <input type="checkbox"/>            | Box No. II   | Priority  |
| <input type="checkbox"/>            | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability  |
| <input checked="" type="checkbox"/> | Box No. IV   | Lack of unity of invention  |
| <input checked="" type="checkbox"/> | Box No. V    | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/>            | Box No. VI   | Certain documents cited   |
| <input type="checkbox"/>            | Box No. VII  | Certain defects in the international application  |
| <input type="checkbox"/>            | Box No. VIII | Certain observations on the international application   |

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44*bis*.3(c) and 93*bis*.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44*bis* .2).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland  Facsimile No. +41 22 338 82 70	Date of issuance of this report 24 July 2006 (24.07.2006)  Authorized officer  <div style="text-align: right; font-weight: bold;">Yolaine Cussac</div> e-mail: pt11@wipo.int
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# PATENT COOPERATION TREATY

REC'D 20 OCT 2005

From the  
INTERNATIONAL SEARCHING AUTHORITY

WIPO

PCT

## PCT

### WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:  
CHRISTOPHER L. WIGHT  
HOLLAND & HART LLP  
555-17TH STREET, SUITE 3200  
P.O. BOX 8749  
DENVER, CO 80201

Date of mailing  
(day/month/year) **18 OCT 2005**

Applicant's or agent's file reference

**FOR FURTHER ACTION**

See paragraph 2 below

49506.0005

International application No.

International filing date (day/month/year)

Priority date (day/month/year)

PCT/US05/02229

19 January 2005 (19.01.2005)

20 January 2004 (20.01.2004)

International Patent Classification (IPC) or both national classification and IPC

IPC(7): C07C 39/215, 69/017 and US Cl.: 560/138; 568729

Applicant

BRIGHAM YOUNG UNIVERSITY TECHNOLOGY TRANSFER

**1. This opinion contains indications relating to the following items:**

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☒ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

**2. FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

**3. For further details, see notes to Form PCT/ISA/220.**

Name and mailing address of the ISA/ US

Mail Stop PCT, Attn: ISA/US  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

Bernard Dentz

Telephone No. 571 272-1600

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US05/02229

**Box No. I Basis of this opinion**

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This opinion has been established on the basis of a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

☐ a sequence listing

☐ table(s) related to the sequence listing

b. format of material

☐ in written format

☐ in computer readable form

c. time of filing/furnishing

☐ contained in international application as filed.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/US05/02229

Box No. IV Lack of unity of invention

1. ☒ In response to the invitation (Form PCT/ISA/206) to pay additional fees the applicant has:
- ☐ paid additional fees
- ☐ paid additional fees under protest
- ☒ not paid additional fees
2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is
- ☐ complied with
- ☒ not complied with for the following reasons:
- See the lack of unity section of the International Search Report (Form PCT/ISA/210)

4. Consequently, this opinion has been established in respect of the following parts of the international application:
- ☐ all parts.
- ☒ the parts relating to claims Nos. 1-18 and 32-50

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.  
PCT/US05/02229

Box No. V Reasoned statement under Rule 43 bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

I. Statement

Novelty (N)	Claims <u>1-18 and 32-50</u>	YES
	Claims <u>NONE</u>	NO
Inventive step (IS)	Claims <u>NONE</u>	YES
	Claims <u>1-18 and 32-50</u>	NO
Industrial applicability (IA)	Claims <u>1-18 and 32-50</u>	YES
	Claims <u>NONE</u>	NO

2. Citations and explanations:

Claims 1-18 and 32-50 lack an inventive step under PCT Article 33(3) as being obvious over Brigham Young University in view of Herrmann et al. The former discloses the preparation of the instant tri-organyloxy-stilbenes using the instant decarbonylative Heck-Coupling reaction of the corresponding diorganyloxybenzoyl halide and the corresponding acetoxy-styrene. The instantly claimed process differs from the reference in using a N-heterocyclic carbene-type ligand to form with the transition metal a catalyst complex. However this is rendered obvious by Herrmann et al which teaches this technique in carrying out Heck-Coupling reactions.

Claims 1-18 and 32-50 meet the criteria set out in PCT Article 33(4), and thus possess industrial applicability because the subject matter claimed can be made or used in industry.

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REC'D 20 OCT 2005

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INTERNATIONAL SEARCHING AUTHORITY

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See paragraph 2 below

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Authorized officer

Bernard Dentz

Telephone No. 571 272-1600

Form PCT/ISA/237 (cover sheet) (January 2004)

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International application No.

PCT/US05/02229

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WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.  
PCT/US05/02229

Box No. V Reasoned statement under Rule 43 *bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)

Claims 1-18 and 32-50 YES

Claims NONE NO

Inventive step (IS)

Claims NONE YES

Claims 1-18 and 32-50 NO

Industrial applicability (IA)

Claims 1-18 and 32-50 YES

Claims NONE NO

2. Citations and explanations:

Claims 1-18 and 32-50 lack an inventive step under PCT Article 33(3) as being obvious over Brigham Young University in view of Herrmann et al. The former discloses the preparation of the instant tri-organyloxy-stilbenes using the instant decarbonylative Heck-Coupling reaction of the corresponding diorganyloxybenzoyl halide and the corresponding acetoxy-styrene. The instantly claimed process differs from the reference in using a N-heterocyclic carbene-type ligand to form with the transition metal a catalyst complex. However this is rendered obvious by Herrmann et al which teaches this technique in carrying out Heck-Coupling reactions.

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